

# What is a leafminer?

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- May include stem miners, fruit miners and related types of internal feeding
- Some area leafminers for just the early instars
- Five principle families; dozens of others including some Lycaenidae, Noctuidae, and most microlep families



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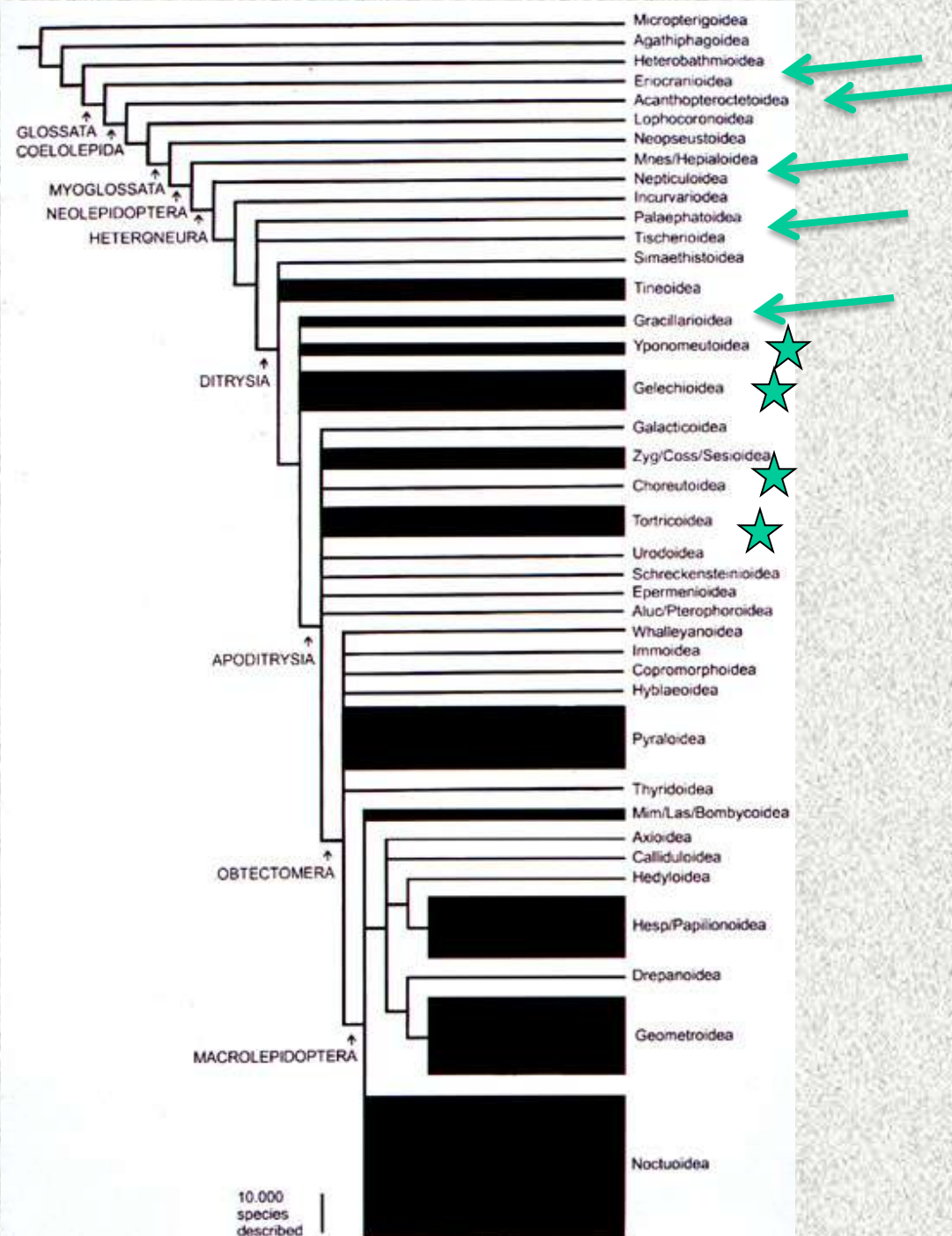


# (Why?) Leafminers

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- handsome
- many new taxa: >90% of Neotropical species are undescribed
- efficiently collected
- entire life history may be revealed with collection of single leaf
- often easy to find and rear in series
- useful for ecological studies





Major leafmining superfamilies indicated with an arrow; superfamilies with many leafminers indicated with a star.

# Major Leafmining Families

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- Nepticulidae – 40+ spp. in Connecticut
- Tischeriidae – 12 spp. in Connecticut
- Bucculatricidae – 13+ spp. in Connecticut
- Gracillariidae – 134 spp. in Connecticut
- Coleophoridae – 34+ spp. in Connecticut

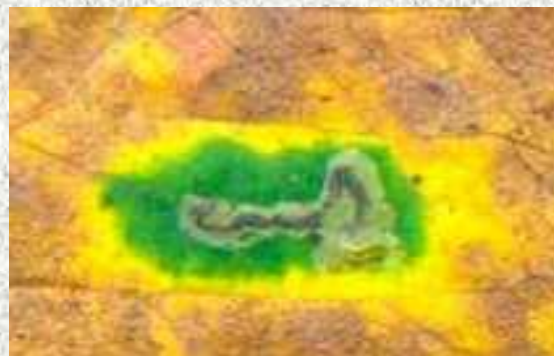


# Nepticulidae

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- roughly 100 Nearctic species
- minute
- most woody plant families, some low perennials, a few in graminoids
- mines with species-specific frass trails
- several are “green island” leafminers





# Heliozelidae

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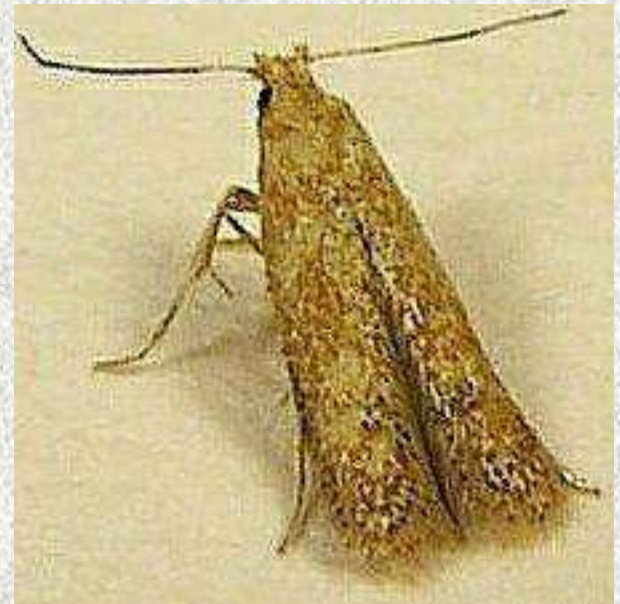
- roughly 25 Nearctic species
- minute
- all on woody plant families, esp. Ericaceae, Fagaceae, Myricaceae, Rosaceae, Vitaceae, etc.
- rich fauna here in Arizona



# Tischeriidae

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- roughly 50 Nearctic species – world's diversity centered in American SW
- very small
- most woody plant families, some low perennials, esp. Asteraceae, Fagaceae, Rosaceae, and Rhamnaceae
- mine architecture species specific
- most exclude some or all frass from mine

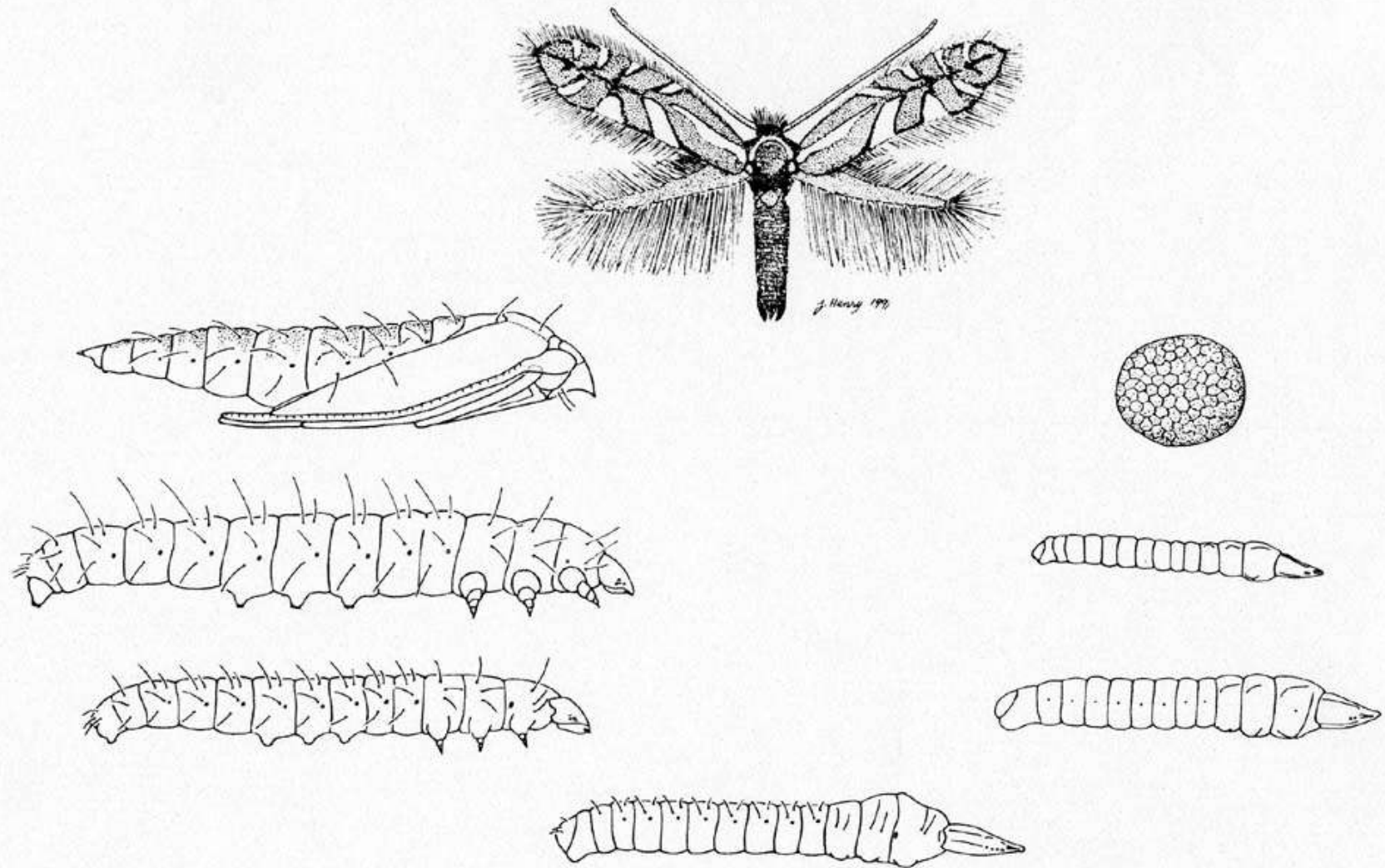


# Gracillariidae

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- roughly 300 Nearctic species
- minute to 14 mm
- most woody plant families, some low perennials, one graminoid
- hypermetamorphic: early instar are sap-feeders while late instars are tissue-feeders



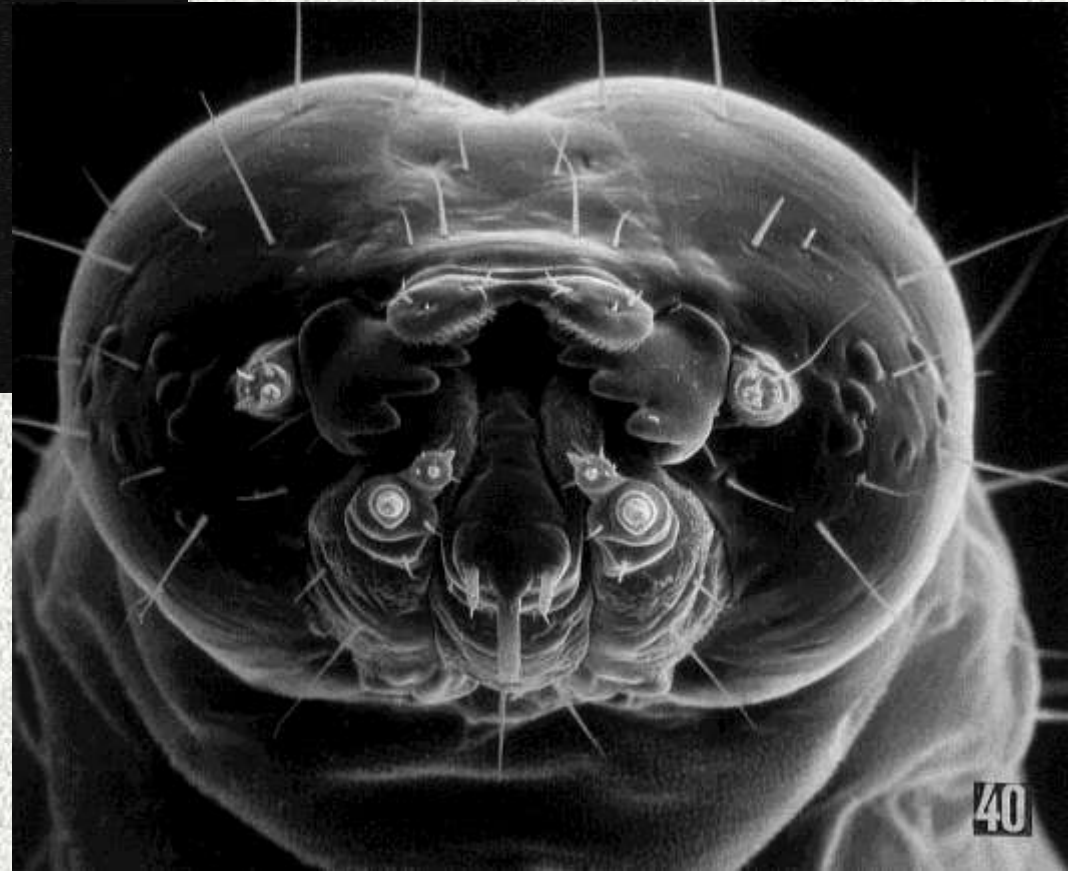


Life cycle of Phyllonorycter blancardella (F.) redrawn from Pottinger and LeRieux, 1971.

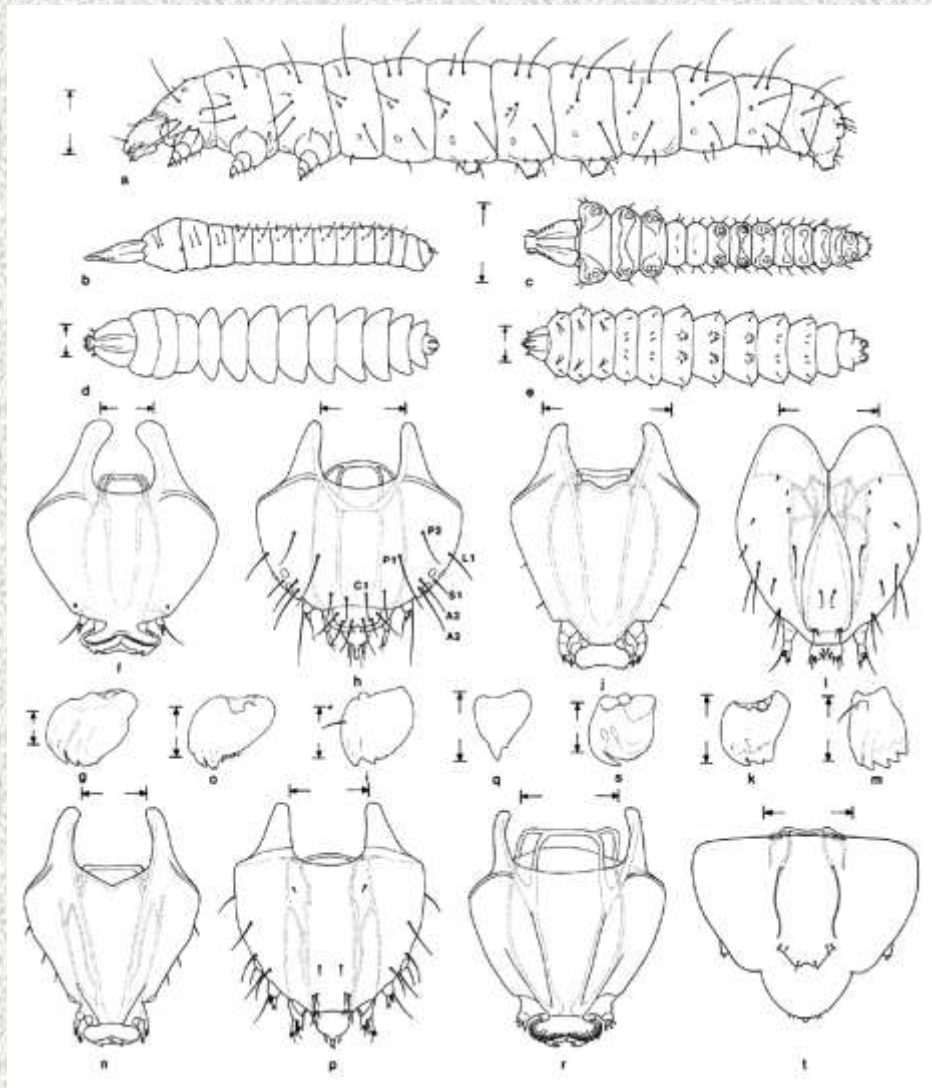
Sap-feeding instar of  
*Neurostrota gunniella*



Tissue-feeding instar of  
*Neurostrota gunniella*



# Gracillariid Hypermetamorphosis



# Bucculatricidae

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- roughly 100 Nearctic species – world's diversity centered in American SW
- Very small
- most composites (Asteraceae) also many woody plant families, e.g., Fagaceae, Rosaceae, Rhamnaceae, etc.
- leave mine after 3<sup>rd</sup>/4<sup>th</sup> instar to feed externally (skeletonize small patches of leaf tissue)
- form a distinctive ribbed cocoon





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# Coleophoridae

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- roughly 150 Nearctic species – with many dozens as yet undescribed
- especially rich fauna in Southwest
- medium- to large-sized micros with largest to 2 cm in wingspan
- mostly composites (Asteraceae); also many graminoids; dozens of woody plant families, including usual suspects, i.e., Fagaceae, Rosaceae, etc.
- live in case but mine leaves; each larva makes multiple and sometimes dozens of mines

